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EXAMINER

FUJITA, KATRINA R

ART UNIT	PAPER NUMBER
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2624

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10/03/2007

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary

Application No.

10/521,254

Applicant(s)

KAUS ET AL.

Examiner

Katrina Fujita

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-9 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-9 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 13 January 2005 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. ____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date 09/15/2005, 11/16/2006.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. ____.
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: ____.

DETAILED ACTION

Priority

1. Receipt is acknowledged of papers submitted under 35 U.S.C. 119(a)-(d), which papers have been placed of record in the file.

Information Disclosure Statement

2. The Pardo et al. reference cited in the Search Report EPO has not been considered, and will not be listed on any patent resulting from this application because it was not provided on a separate list in compliance with 37 CFR 1.98(a)(1). In order to have the reference printed on such resulting patent, a separate listing, preferably on a PTO/SB/08A and 08B form, must be filed within the set period for reply to this Office action. Although Mazess reference (US 5,673,298) was also not listed in an IDS, it has been considered and included on the list of references cited.

Drawings

3. Figure 1 is objected to as depicting a block diagram without “readily identifiable” descriptors of each block, as required by 37 CFR 1.84(n). Rule 84(n) requires “labeled representations” of graphical symbols, such as blocks; and any that are “not universally recognized may be used, subject to approval by the Office, if they are not likely to be confused with existing conventional symbols, and if they are readily identifiable.” In the case of Figure 1, the blocks are not readily identifiable per se and therefore require the insertion of text that identifies the function of that block. That is, each vacant block should be provided with a corresponding label identifying its function or purpose.

4. Figures 1 and 3 are objected to as failing to comply with 37 CFR 1.84(p)(5) because they include the following reference character(s) not mentioned in the description: 3 (Figure 1), 106 (Figure 3).

Corrected drawing sheets in compliance with 37 CFR 1.121(d), or amendment to the specification to add the reference character(s) in the description in compliance with 37 CFR 1.121(b) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either “Replacement Sheet” or “New Sheet” pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Specification

5. The disclosure is objected to because of the following informalities:

The first line of the specification does not include a sentence acknowledging applicant's claim for foreign priority. The examiner suggests amending the specification to include that information.

Appropriate correction is required.

Claim Objections

6. The following is a quotation of 37 CFR 1.75(a):

The specification must conclude with a claim particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention or discovery.

7. Claims 1, 3 and 7-9 are objected to under 37 CFR 1.75(a), as failing to particularly point out and distinctly claim the subject matter which application regards as his invention or discovery.

Claim 1 lacks antecedent basis for "the geometric properties" in line 6. The following will be assumed for examination purposes: -- the ~~geometric~~ geometrical properties --. The same applies to claim 8, line 8 and claim 9, line 7.

Claim 1 recites "additional geometrical information" in line 7. It is unclear whether this is intended to be the same as or different from the "additional geometrical information" in line 4. The following will be assumed for examination purposes: -- the additional geometrical information --. The same applies to claim 8, line 9 and claim 9, line 8.

Claim 3 lacks antecedent basis for "the geometrical primitive" in line 2. The following will be assumed for examination purposes: -- the ~~geometrical~~ geometric primitive --.

Claim 7 lacks antecedent basis for "the geometric primitive" in line 5. The following will be assumed for examination purposes: -- the ~~geometric~~ geometrical primitive --.

Claim Rejections - 35 USC § 101

8. 35 U.S.C. 101 reads as follows:

Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

The USPTO "Interim Guidelines for Examination of Patent Applications for Patent Subject Matter Eligibility" (Official Gazette notice of 22 November 2005), Annex IV, reads as follows:

Descriptive material can be characterized as either "functional descriptive material" or "nonfunctional descriptive material." In this context, "functional descriptive material" consists of data structures and computer programs which impart functionality when employed as a computer component. (The definition of "data structure" is "a physical or logical relationship among data elements, designed to support specific data manipulation functions." The New IEEE Standard Dictionary of Electrical and

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Electronics Terms 308 (5th ed. 1993).) "Nonfunctional descriptive material" includes but is not limited to music, literary works and a compilation or mere arrangement of data.

When functional descriptive material is recorded on some computer-readable medium it becomes structurally and functionally interrelated to the medium and will be statutory in most cases since use of technology permits the function of the descriptive material to be realized. Compare *In re Lowry*, 32 F.3d 1579, 1583-84, 32 USPQ2d 1031, 1035 (Fed. Cir. 1994) (claim to data structure stored on a computer readable medium that increases computer efficiency held statutory) and *Warmerdam*, 33 F.3d at 1360-61, 31 USPQ2d at 1759 (claim to computer having a specific data structure stored in memory held statutory product-by-process claim) with *Warmerdam*, 33 F.3d at 1361, 31 USPQ2d at 1760 (claim to a data structure per se held nonstatutory).

In contrast, a claimed computer-readable medium encoded with a computer program is a computer element which defines structural and functional interrelationships between the computer program and the rest of the computer which permit the computer program's functionality to be realized, and is thus statutory. See *Lowry*, 32 F.3d at 1583-84, 32 USPQ2d at 1035.

9. Claim 9 is rejected under 35 U.S.C. 101 because the claimed invention is directed to non-statutory subject matter as follows. Claim 9 defines a computer program embodying functional descriptive material. However, the claim does not define a computer-readable medium or computer-readable memory and is thus non-statutory for that reason (i.e., "When functional descriptive material is recorded on some computer-readable medium it becomes structurally and functionally interrelated to the medium and will be statutory in most cases since use of technology permits the function of the descriptive material to be realized" – Guidelines Annex IV). The scope of the presently claimed invention encompasses products that are not necessarily computer readable, and thus NOT able to impart any functionality of the recited program. The examiner suggests amending the claim(s) to embody the program on "computer-readable medium" or equivalent; assuming the specification does NOT define the computer readable medium as a "signal", "carrier wave", or "transmission medium" which are deemed non-statutory (refer to "note" below). Any amendment to the claim should be commensurate with its corresponding disclosure.

Note:

A "signal" (or equivalent) embodying functional descriptive material is neither a process nor a product (i.e., a tangible "thing") and therefore does not fall within one of the four statutory classes of § 101. Rather, "signal" is a form of energy, in the absence of any physical structure or tangible material.

Should the full scope of the claim as properly read in light of the disclosure encompass non-statutory subject matter such as a "signal", the claim as a whole would be non-statutory. In the case where the specification defines the computer readable medium or memory as statutory tangible products such as a hard drive, ROM, RAM, etc, as well as a non-statutory entity such as a "signal", "carrier wave", or "transmission medium", the examiner suggests amending the claim to include the disclosed tangible computer readable media, while at the same time excluding the intangible media such as signals, carrier waves, etc.

Claim Rejections - 35 USC § 102

10. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(a) the invention was known or used by others in this country, or patented or described in a printed publication in this or a foreign country, before the invention thereof by the applicant for a patent.

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(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

11. Claims 1-3, 8 and 9 are rejected under 35 U.S.C. 102(b) as being anticipated by Chaney et al. (US 5,926,568).

Regarding **claims 1, 8 and 9**, Chaney et al. discloses a method, computer program ("computer program instructions" at col. 22, line 51) and an image processing device (figure 10, numeral 55), comprising:

a memory (memory of figure 10, numeral 55) for storing a deformable model (figure 6, numeral 175) and an image depicting an object (figure 6, numeral 110); and

an image processor ("processor" at col. 22, line 56) for determining geometrical properties of the object, which processor performs the following operation:

adapting a deformable surface model to the object ("deformable when applied to the object" at col. 4, line 13; figure 6, numeral 100);

applying additional geometrical information to the adapted deformable surface model of the object (figure 6, numeral 177); and

extracting the geometric properties of the structure of the object from the adapted deformable surface model to which additional geometrical information has been applied (figure 6, numeral 197).

Regarding **claim 2**, Chaney et al. discloses a method wherein the step of applying additional geometrical information to the adapted deformable surface model of the object further comprises the steps of:

identifying surface elements of the deformable surface model relating to a particular sub-part of the object ("a set of inter-figural links is defined which connect neighboring boundary sites on the subfigures and the parent figure" at col. 21, line 22); and

fitting a geometric primitive to the surface elements relating to the particular sub-part of the object in the deformable surface model, the geometric primitive having a form corresponding to a form of the particular sub-part ("each of the sites for the subfigures were then optimized over the individual figural parameters of translation, rotation, and scaling" at col. 21, line 34).

Regarding **claim 3**, Chaney et al. discloses a method wherein the geometrical properties of the object are extracted on the basis of the geometrical primitive ("subfigures" at col. 21, line 20).

Regarding **claim 4**, Chaney et al. discloses a method wherein the surface elements of the particular sub-part of the object are identified by means of labels assigned to the surface elements belonging to the particular sub-part ("links labeled MM are the medial-medial links" at col. 13, line 47).

Regarding **claim 5**, Chaney et al. discloses a method for determining an extended deformable surface model for adaptation to an object (figure 6, numeral 197), comprising the steps of:

determining a deformable surface model of the object, wherein the deformable surface model describes a surface of the object ("deformable when applied to the object" at col. 4, line 13; figure 6, numeral 100); and

integrating additional geometrical information into the deformable surface model (figure 6, numeral 177).

Regarding **claim 6**, Chaney et al. discloses a method wherein the step of integrating additional geometrical information into the deformable surface model further comprises the steps of:

selecting surface elements of a plurality of surface elements of the deformable surface model which belong to a sub-part of the object ("a set of inter-figural links is defined which connect neighboring boundary sites on the subfigures and the parent figure" at col. 21, line 22);

labeling the surface elements of the plurality of surface elements of the deformable surface model such that surface elements which belong to the same sub-part have the same label ("links labeled MM are the medial-medial links" at col. 13, line 47).

Regarding **claim 7**, Chaney et al. discloses a method wherein the step of integrating additional geometrical information into the deformable surface model further comprises the steps of:

selecting a geometrical primitive in accordance with a form of the sub-part ("subfigures" at col. 21, line 20); and

determining a rule which maps the geometric primitive onto the surface elements of the plurality of surface elements of the deformable surface model ("each of the sites for the subfigures were then optimized over the individual figural parameters of translation, rotation, and scaling" at col. 21, line 34).

Conclusion

12. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. US 2005/0018885 and US 2002/0136440 are both pertinent as disclosing reconstruction and modeling of tissue.

13. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Katrina Fujita whose telephone number is (571) 270-1574. The examiner can normally be reached on M-Th 8-5:30pm, F 8-4:30pm.


If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Brian P. Werner can be reached on (571) 272-7401. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.



Katrina Fujita
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BRIAN WERNER
SUPERVISORY PATENT EXAMINER